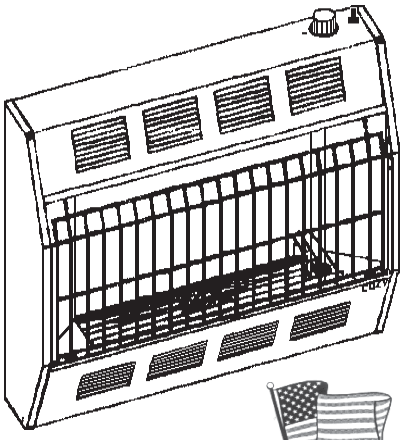
BLUE FLAME VENT FREE HEATERS

INSTALLATION AND OPERATION INSTRUCTIONS

P/N 88950 / REV. MARCH 2013

NICE & WARM™ Vent-Free Gas Heat

TYPE GAS	MODEL NUMBERS		
NATURAL GAS	BFT101	BFT201	BFT301
PROPANE GAS	BFT102	BFT202	BFT302



MADE IN U.S.A.

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

- **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**
- **WHAT TO DO IF YOU SMELL GAS:**

- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

- **INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.**

INSTALLER: Leave this manual with the appliance.
CONSUMER: Retain this manual for future reference.

INSTALLER MUST SHOW HOMEOWNER PROPER LIGHTING AND OPERATION OF HEATER. HAVE THEM COMPLETE AND RETURN THE WARRANTY CARD.

This is an unvented gas fired heater. It uses air (oxygen) from the room in which it is installed. Provisions for adequate combustion and ventilation air must be provided. See Pg. 4 & 5.

This unit is for residential use only and is not approved for installation in greenhouses,or environments involving dusty, wet, corrosive, or explosive conditions. Such conditions will invalidate the warranty and may create unsafe conditions.

This appliance may be installed in an aftermarket, permanently located, manufactured (mobile) home, where not prohibited by local codes. This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not convertible for use with other gases.

Installation, maintenance, service, troubleshooting and repairs must be performed by a qualified service agency. MR./MRS. HOMEOWNER, **DO NOT** attempt any of these procedures yourself as this could expose you to property damage, personal injury or loss of life and will invalidate all warranties.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Refer to the owner's information manual provided with this appliance. Installation and service must be performed by a qualified installer, service technician or the gas supplier.

The State of Massachusetts requires that installation and service of a gas appliance be performed by a plumber or gas fitter licensed in the Commonwealth of Massachusetts.

HEATERS INSTALLED ABOVE 4,500 FT. MAY EXPERIENCE NUISANCE PILOT OUTAGE AND THIS CONDITION MAY BE AGGRAVATED BY IMPROPER GAS SUPPLY PRESSURE AND/OR INCORRECT SIZING RELATIVE TO FREE AIR OR CONFINED SPACE.

CONTENT

INTRODUCTION……..	2, 3	GAS CONNECTION……..	10
SPECIFICATIONS……	3	LIGHTING INSTRUCTIONS…….....	11
SAFETY INSTRUCTIONS……..	3, 4	PROPER OPERATION…….....	12
FRESH AIR FOR COMBUSTION VENTI- LATION & AIR DISTRIBUTION…….	4, 5	MAINTENANCE…….....	13
		BLOWER INSTRUCTIONS…….....	14
INSTALLATION……..	5, 6	TROUBLE SHOOTING GUIDE…….....	15
CLEARANCES……..	6	ILLUSTRATED PARTS BREAKDOWN…….....	16
TOOLS & ADDITIONAL SUPPLIES…..	6	PARTS LIST…….....	17
GAS ROUGH-IN……	6	WARRANTY…….....	18
WALL MOUNT……..	9	L.P. GAS WARNING SHEET…….....…….	19
FREE STANDING……..	9		

INTRODUCTION

Read these installation and operating instructions carefully before you install or attempt to use this vent free room heater. If you do not understand any part of these instructions, consult local authorities, a qualified installer, service agency, or the gas supplier. **FAILURE TO READ OR UNDERSTAND THESE INSTRUCTIONS CAN RESULT IN MALFUNCTION, INEFFICIENT OPERATION, PROPERTY DAMAGE, SERIOUS INJURY OR DEATH**.

These installation instructions are a general guide and do not supersede applicable local codes and ordinances. Before planning or beginning the installation be sure it complies with all phases of the local heating code. Or, in the absence of local codes, with the latest edition of the National Fuel Gas Code, ANSI.Z223.1. A copy of which is available from the American Gas Association, 1515 Wilson Blvd., Arlington, Virginia 22209.

The design of this appliance was certified to comply with the latest edition of ANSI Z21.11.2, also available from the American Gas Association.

INTRODUCTION – CONT'D.

For your protection this heater is equipped with an Oxygen Depletion Sensor (ODS) pilot system. Never operate heater if ODS has been damaged or tampered with as this could expose you to Carbon Monoxide (a colorless, odorless gas) that could result in injury or death. Early signs of Carbon Monoxide poisoning resemble influenza, with headaches, dizziness, or nausea. If you develop these symptoms GET FRESH AIR AT ONCE. Turn off heater and call a qualified serviceman to check heater. Some people are more affected by Carbon Monoxide than others: Including pregnant women, persons with a heart or lung disease, anemia, those under the influence of alcohol, and those at high altitudes.

OPERATION

The Cozy thermostatically controlled units offer the additional benefit of automatically cycling the heating to maintain just the right room temperature. VENTFREE GAS ROOM HEATERS ARE DESIGNED STRICTLY FOR "SUPPLEMENTAL" ROOM HEAT USE AND SHOULD NEVER BE INSTALLED AS "SOLE SOURCE HEATING".

ROOM HEATER SPECIFICATIONS

Your room heater comes packed in a single carton. Before installation, check the rating plate to verify that the Model Number is correct and that the room heater is equipped for the type gas you intend to use.

MODEL NO./NAT.	**BFT101**	**BFT201**	**BFT301**
MODEL NO./L.P.	**BFT102**	**BFT202**	**BFT302**
Control	T-Stat Bulb	T-Stat Bulb	T-Stat Bulb
Height	22-1/2"	22-1/2"	22-1/2"
Width	14-9/16"	20-11/16"	26-13/16"
Depth	7"	7"	7"
Max. Input BTU hr.	10,000	20,000	30,000
Min. Input BTU Hr.	6,000	10,000	20,000
Gas Supply Line Size	1/2"	1/2"	1/2"
Optional Blower	No	Yes	Yes
Optional Floor Stand	Yes	Yes	Yes
Bathroom Installation	No	No	No
Bedroom Installation	Yes	No	No
Piezo Ignitor	Yes	Yes	Yes
Shipping Weight	22 Lbs.	32 Lbs.	35 Lbs.

SAFETY INSTRUCTIONS

1) Keep burner and control compartment clean.
2) Due to high temperatures, the heater should be located out of traffic and away from furniture and draperies.
3) Children and adults should be alerted to the hazard of high surface temperature and should stay away to avoid burns or clothing ignition.
4) Young children should be carefully supervised then they are in the same room with this heater.
5) Do not place clothing or other flammable material on or near the heater.
6) Any safety screen or guard removed for servicing must be replaced prior to operating the heater.

SAFETY INSTRUCTIONS - CONTINUED

7) Installation and repair should be done by a qualified technician. The heater should be inspected before use and at least annually by a professional service technician. More frequent cleaning may be required due to excessive lint from carpeting, bedding, material, etc. It is imperative that control compartments, burners, and circulating air passageways of the heater be kept clean.
8) **"WARNING:** Any modifications to this heater or its controls can be dangerous".
9) Do not use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.
10) Due to high surface temperatures, keep children, clothing, and furniture away.
11) Do not install this heater in a recreational vehicle.
12) Never use a match, candle, flame or other source of ignition to check for gas leaks. Use only soapy water or liquid detergent.
13) Before cleaning or servicing, turn off the gas and allow heater to cool.
14) Do not put objects around the heater that will obstruct the flow of combustion and ventilation air.
15) When installing the heater allow adequate accessibility clearances for servicing and proper operation.
16) Keep appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.
17) **Do not install in a residential or commercial garage.**
18) **WARNING**: Do not use a blower or other accessory not approved for use with this heater.
19) **WARNING**: Failure to keep the primary air opening(s) of the burner(s) clean may result in sooting and property damage.
20) This appliance is intended for supplemental heating.

FRESH AIR FOR COMBUSTION, VENTILATION AND HEAT DISTRIBUTION

With todays energy efficient homes, it is possible to make your home so air tight that it can result in stale air, dry rot, mold development and host of other related problems. Gas burning appliances need fresh air for combustion as well as for good distribution of heated air throughout the home. The following guide provides good general rules for classifying and properly ventilating most homes.

"This heater shall not be installed in a confined or unusually tight construction unless provisions are provided for adequate combustion and ventilation air."

"This heater shall not be installed in a room or space unless the required volume of indoor combustion air is provided by the method described in the *National Fuel Gas Code*, ANSI Z223.1/NFPA 54, the *International Fuel Gas Code*, or applicable local codes."

"WARNING: If the area in which the heater may be operated does not meet the required volume for indoor combustion air, combustion and ventilation air shall be provided by one of the methods described in the *National Fuel Gas Code*, ANSI Z223.1/NFPA 54, the *International Fuel Gas Code*, or applicable local codes."

"A confined space is a space whose volume is less than 50 ft^3 per 1000 Btu/hr (4.8 m^3 per kw) of the aggregate input rating of all appliances installed in that space and an unconfined space as a space whose volume is not less than 50 ft^3 per 1000 Btu/hr (4.8 m^3 per kw) of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space."

Use the following example to determine if the heater is being installed in a confined or unconfined space.

STEP 1. First find the cubic feet of area to be heated length x width x height. NOTE: Include any adjoining rooms that cannot be separated by closing a door or that have a air exchange grille that cannot be closed between rooms. EXAMPLE: Area size 25 ft. x 15 ft. x 7-1/2 ft. = 2,812.5 cubic feet.

STEP 2. Divide area cubic feet by 50. EXAMPLE: 2,812.5 ÷ 50 = 56.25. Multiply this number by 1,000 for total Btu input room can support. E XAMPLE: 56.25 x 1,000 = 56,250 Btu.

STEP 3. List all gas burning appliances in this area and total the combined Btu input. EXAMPLE:

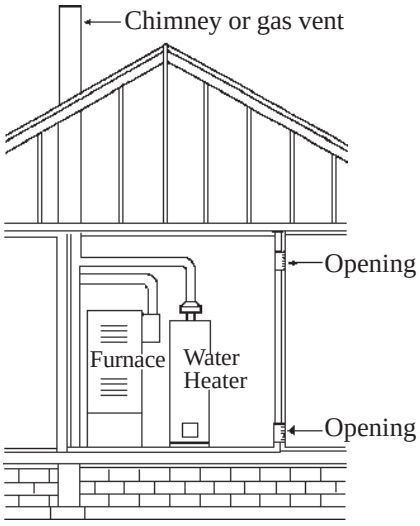
Cozy vent free heater……..	20,000 Btu
Gas water heater……..	58,000 Btu
Gas range (all burners & oven on)……..	28,000 Btu
	106,000 Btu

FRESH AIR FOR COMBUSTION, VENTILATION AND HEAT DISTRIBUTION - CONT'D.

STEP 4. Compare the total Btu the area can support (from Step 2) to the total Btu in the area the heater will be installed (from Step 3). If the total from Step 2 is larger this is considered an unconfined space, if Btu total from Step 3 is larger this is considered a confined space and provisions must be made for additional combustion and ventilation air. EXAMPLE: Btu area can support is 56,250, total Btu in area is 106,000 – this would be a confined space.

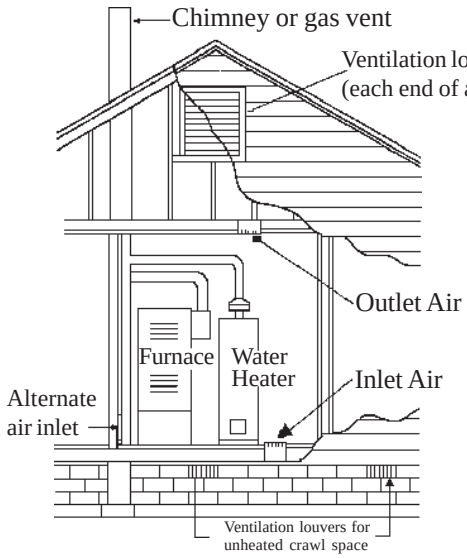
NOTE: A third construction class is one with unusually tight construction, defined as, construction where: (A) Walls and ceilings exposed to the outside atmosphere have a continuous water vapor retarder with a rating of 1 per (6x10-11 Kg per pa-sec-m²) or less with openings gasketed or sealed, and, (B) Weatherstripping has been added enable windows and doors, and , (C) Caulking or sealants are applied to areas such as joints around window and door frames, between sole plates and floors, between wall ceiling joints, between wall panels, at penetration for plumbing, electrical, and gas lines, and at other openings.

"**WARNING**: If the area in which the heater may be operated does not meet the required volume for indoor combustion air, combustion and ventilation air shall be provided by one of the methods described in the *National Fuel Gas Code*, ANSI Z223.1/NFPA 54 Air for Combustion and Ventilation, the International Fuel Gas Code, or applicable local codes." Examples would be to provide two permanent openings either to an adjoining room, or to the outside. See the *National Fuel Gas Code* for details. See Figure 9 & Figure 10 below.



Equipment located in confined spaces; all air from inside the building. See 5.3.3(a).

FIGURE 9



Equipment located in confined spaces; all air from outdoors - inlet air from ventilated crawl space and outlet air to ventilated attic. See 5.3.3(b).

FIGURE 10

INSTALLATION

Installation and service must be performed by a qualified installer, service technician or the gas supplier.

LOCATION

1) For most efficient performance, locate heater as centrally as possible in the area to be heated.
2) Do not install heater in a closet, alcove or small hallway where the heater could be isolated from the space to be heated and adequate combustion air by closing a door.

INSTALLATION - CONTINUED

3) Protect heater from wind, high traffic areas, and drafts (such as doorways, locations that get direct air from a ceiling fan, etc.) as this will cause nuisance pilot outage.
4) All models may be wall mounted using the factory supplied (standard) wall mounting bracket. Additionally all models may be installed freestanding, by adding the optional VF-FSK Floor Stand Kit and using an approved, fire resistant floor mat (available from factory). **NOTE**: Both wall and floor mount installations require hard piping.
5) If optional blower is to be added, locate heater so there is safe access to an electrical outlet.

CLEARANCES

1) Maintain adequate accessibility clearances for servicing and proper operation.
2) Minimum clearances as viewed from front of heater, see Fig. 1. 3" clearance below heater shall be measured from top surface of carpeting, tile, etc.
3) If VF-FSK Free Standing Kit is used and the heater is installed directly on carpeting, tile, or other combustible material other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance, such as a stove board.

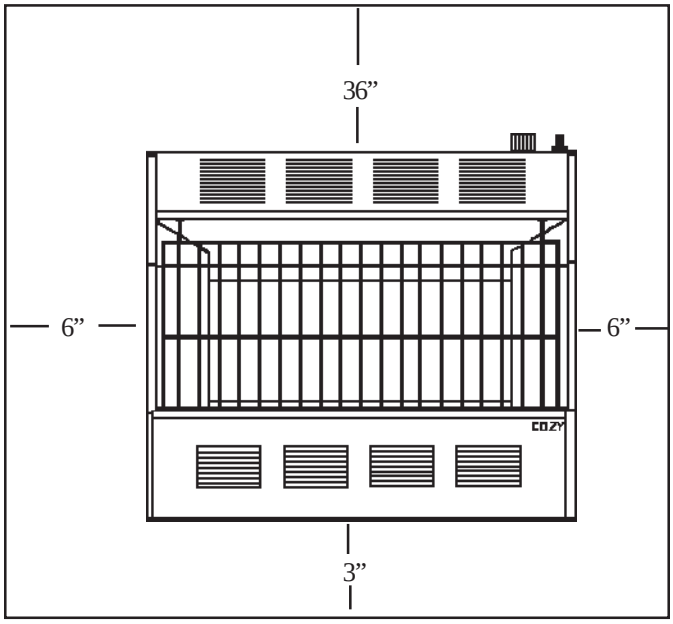


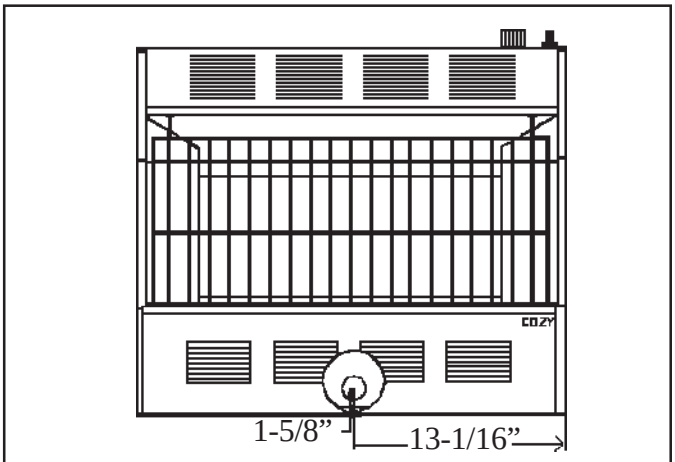
FIGURE 1

TOOLS AND ADDITIONAL SUPPLIES REQUIRED

1) Pipe wrenches (2).
2) Phillip head screwdriver or screwgun.
3) Pressure test gauge.
4) An A.G.A. certified manual shut off valve with 1/8" NPT pressure tap.
5) Union connector for type of piping used (check local codes).
6) Pipe sealant certified for use with L.P. gas.
7) Components to assemble a drip leg.
8) Level.
9) Drill (if anchors are required).

ROUGH-IN GAS SUPPLY

1) Determine location of heater. (See "Operation", "Fresh Air", and "Safety Instructions" for details.
2) Install at least a ½" diameter gas supply line. (Gas supply can enter through bottom or back of heater). See Figure 2.



GAS INLET LOCATION
FIGURE 2

SEE FOLLOWING CHARTS FROM NFPN54, ANSI Z223.1 TO DETERMINE PROPER GAS SUPPLY LINE SIZE REQUIRED TO SUPPORT TOTAL BTU REQUIREMENTS.

NATURAL GAS

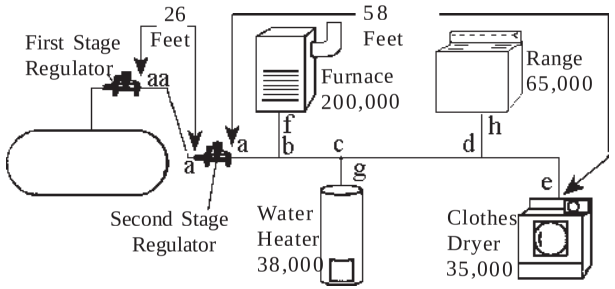
Maximum Capacity of Pipe in Cubic Feet of Gas per Hour for Gas Pressures of 0.5 psig or Less and a Pressure Drop of 0.5 Inch Water Column.

(Based on a 0.60 Specific Gravity Gas)

Nominal Iron Pipe Size, Inches	Internal Diameter, Inches	LENGTH OF PIPE, FEET 10	20	30	40	50	60	70	80	90	100	125	150	175	200
¼	0.364	43	29	24	20	18	16	15	14	13	12	11	10	9	8
3/8	0.493	95	65	52	45	40	36	33	31	29	27	24	22	20	19
½	0.622	175	120	97	82	73	66	61	57	53	50	44	40	37	35
¾	0.824	360	250	200	170	151	138	125	118	110	103	93	84	77	72
1	1.049	680	465	375	320	285	260	240	220	205	195	175	160	145	135
1-1/4	1.38	1400	950	770	660	580	530	490	460	430	400	360	325	300	280
1-1/2”	1.61	2100	1460	1180	990	900	810	750	690	650	620	550	500	460	430
2	2.067	3950	2750	2200	1900	1680	1520	1400	1300	1220	1150	1020	950	850	800
2-1/2	2.469	6300	4350	3520	3000	2650	2400	2250	2050	1950	1850	1650	1500	1370	1280
3	3.068	11000	7.7	6250	5300	4750	4300	3900	3700	3450	3250	2950	2650	2450	2280
4	4.026	23000	15800	12800	10900	9.7	8800	8100	7500	7200	6700	6000	5500	5000	4600

* Pipe and Tubing Selection

Total piping length = 84 feet (use table 4 @ 90 feet)
From a to b, demand =200,000 + 38,000 +65,000+35,000
= 338,000 BTU/hr. use 1” pipe.
From b to c, demand = 38,000 + 65,000 + 35,000
= 138,000 BTU/hr; use ¾” pipe or 7/8” tubing.
From c to d, demand = 65,000 + 35,000
= 100,000 BTU/hr; use ¾” pipe or ¾” tubing.
From d to e, demand = 35,000 BTU/hr; use ½” pipe or 5/8” tubing.
From b to f, demand = 200,000 BTU/hr; use 1” pipe.
From c to g, demand = 38,000 BTU/hr; use ½” pipe or 5/8” tubing.
From d to h, demand = 65,000 BTU/hr; use ½” pipe or ¾” tubing.
Example 2.
Determine the sizes of piping or tubing required for the two-stage L.P. Gas installation shown.



Total first stage piping length = 26 feet; first stage regulator setting is 10 PSIG (use Table 1 or 3, @ 30 feet)
From aa to a, demand = 338,000 BTU/hr; use ½” pipe, ½” tubing, or ½” T plastic pipe.

Total second stage piping length = 58 feet (use table 4, @ 60 feet).
From a to b, demand = 338,000 BTU/hr; use 1” pipe.
From b to c, demand = 138,000 BTU/hr; use ¾” pipe or 7/8” tubing.
From c to d, demand = 100,000 BTU/hr; use ½” pipe or ¾” tubing.
From d to e, demand = 35,000 BTU/hr; use ½” pipe or ½” tubing.
From b to f, demand = 200,000 BTU/hr; use ¾” pipe.
From c to g, demand = 38,000 BTU/hr; use ½” pipe or 5/8” tubing.
From d to h, demand = 65,000 BTU/hr; use ½” pipe or 5/8” tubing.

*Information from - REGO PRODUCTS
“LP GAS SERVICEMAN’S MANUAL”
SEE FOLLOWING PAGE FOR PIPE SIZING CHARTS FOR PROPANE GAS.

TABLE 1 – first stage pipe sizing

PROPANE GAS

10 PSIG Inlet with a 1 PSIG Pressure Drop
Maximum capacity of pipe or tubing, in thousands of BTU/hr. of L.P. Gas

Size of Pipe Or Copper Tubing, Inches		LENGTH OF PIPE OR TUBING, FEET*									
		10	20	30	40	50	60	70	80	90	100
	3/8	558	383	309	265	235	213	196	182	171	161
Copper	½	1387	870	700	599	531	481	443	412	386	365
Tubing	5/8	2360	1622	1303	1115	988	896	824	767	719	679
(O.D.)	¾	3993	2475	2205	1887	1672	1515	1394	1297	1217	1149
	½	3339	2295	1843	1577	1398	1267	1165	1084	1017	961
Pipe	¾	6982	4799	3854	3298	2923	2649	2437	2267	2127	2009
Size	1	13153	9040	7259	6213	5507	4989	4590	4270	4007	3785
	1-1/4	27004	18560	14904	12756	11306	10244	9424	8767	8226	7770
	1-1/2	40461	27809	22331	19113	16939	15348	14120	13136	12325	11642
	2	77924	53556	43008	36809	32623	29559	27194	25299	23737	22422
		125	150	175	200	225	250	275	300	350	400
	3/8	142	130	118	111	104	90	89	89	82	76
Copper	½	323	293	269	251	235	222	211	201	185	172
Tubing	5/8	601	546	502	467	438	414	393	375	345	321
(O.D.)	¾	1018	923	843	790	740	700	664	634	584	543
	½	852	772	710	660	619	585	556	530	488	454
Pipe	¾	1780	1613	1484	1381	1296	1224	1162	1109	1020	949
Size	1	3354	3039	2796	2601	2441	2305	2190	2089	1922	1788
	1-1/4	6887	6240	5741	5340	5011	4733	4495	4289	3945	3670
	1-1/2	10318	9349	8601	8002	7508	7092	6735	6426	5911	5499
	2	19871	18005	16564	15410	14459	13658	12971	12375	11385	10591

*Total length of piping from outlet of first stage regulator to inlet of second stage regulator (or to inlet of second stage regulator furthest away).

Notes: 1) To allow 2 PSIG pressure drop, multiply total gas demand by .707, and use capacities from table.

2) For different first stage pressures, multiply total gas demand by the following factors, and use capacities from table.

First State Pressure PSIG	Multiply by
20	.844
21	.912

Data Calculated per NFPA #54 & 58.

TABLE 4 – Second, Single, or Integral Twin Stage Pipe Sizing

11 Inches Water Column Inlet with a ½ Inch Water Column Drop
Maximum capacity of pipe or tubing in thousands of BTU/hr of LP-Gas

PROPANE GAS

Size of Pipe Or Copper Tubing, Inches		LENGTH OF PIPE OR TUBING, FEET*									
		10	20	30	40	50	60	70	80	90	100
	3/8	49	34	27	23	20	19	—	—	—	—
Copper	1/2	110	76	61	52	46	42	38	36	33	32
Tubing	5/8	206	141	114	97	86	78	71	67	62	59
(O.D.)	3/4	348	239	192	164	146	132	120	113	105	100
	7/8	536	368	296	253	224	203	185	174	161	154
	1/2	291	200	161	137	122	110	102	94	87	84
Pipe	3/4	608	418	336	287	255	231	212	198	185	175
Size	1	1146	788	632	541	480	435	400	372	349	330
	1-1/4	2353	1617	1299	1111	985	892	821	764	717	677
	1-1/2	3525	2423	1946	1665	1476	1337	1230	1144	1074	1014
	2	6789	4666	3747	3207	2842	2575	2369	2204	2068	1954
		125	150	175	200	225	250	275	300	350	400
	3/8	—	—	—	—	—	—	—	—	—	—
Copper	1/2	—	—	—	—	—	—	—	—	—	—
Tubing	5/8	—	—	—	—	—	—	—	—	—	—
(O.D.)	3/4	—	—	—	—	—	—	—	—	—	—
	7/8	—	—	—	—	—	—	—	—	—	—
	1/2	74	67	62	58	54	51	48	46	43	40
Pipe	3/4	155	141	129	120	113	107	101	97	89	83
Size	1	292	265	244	227	213	201	191	182	167	156
	1-1/4	600	544	500	465	437	412	392	374	344	320
	1-1/2	899	815	749	697	654	618	587	560	515	479
	2	1731	1569	1443	1343	1260	1190	1130	1078	992	923

*Total length of piping from outlet of regulator to appliance furthest away.

Data Calculated per NFPA #54 & 58.

INSTALLING HEATER

WALL MOUNT (BFT10)

STEP 1. Remove wall mounting bracket from back of heater.
STEP 2. Locate wall stud.
STEP 3. Attach wall mounting bracket to wall stud with top at desired height, using (2) screws provided. Make sure top of bracket is level. See Figure 3.
STEP 4. Hang top of heater on wall mounting bracket.
STEP 5. Remove bottom front panel.
STEP 6. Secure back of heater to wall, utilizing anchors (if necessary) or wood screws. See Figure 4.

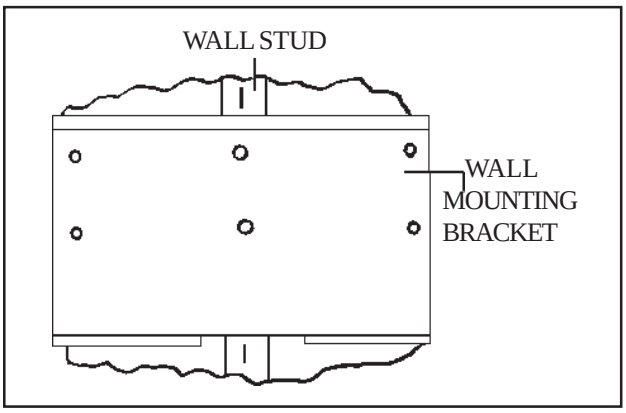


FIGURE 3

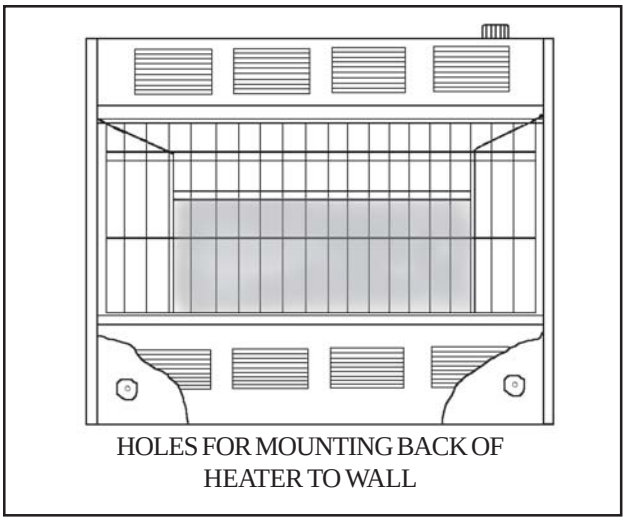


FIGURE 4

WALL MOUNT
BFT20 & BFT30

STEP 1. Remove wall mounting bracket from back of heater.
STEP 2. Locate two studs.
STEP 3. Attach wall mounting bracket to wall studs with top at desired height using (2) wood screws provided. Make sure top of bracket is level. See Figure 5.
STEP 4. Hang top of heater over wall mounting bracket.
STEP 5. Remove bottom front panel.
STEP 6. Secure back of heater to wall, utilizing anchors (if necessary) or wood screws. See Figure 4.

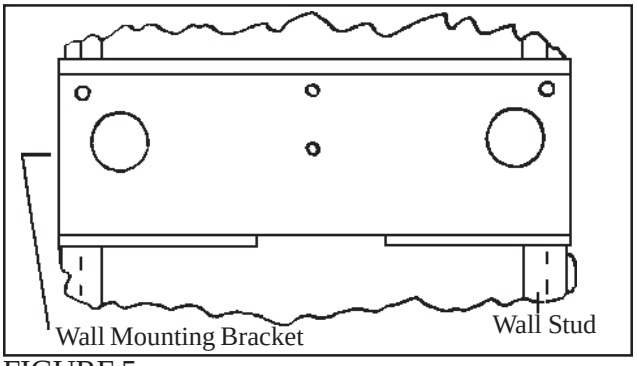
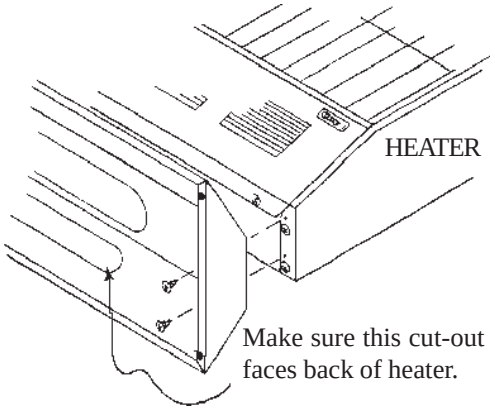


FIGURE 5

INSTALLING VF-FSK FLOOR BASE KIT

STEP 1. Remove floor base from carton.
STEP 2. Align screw holes in base to holes in heater bottom.
STEP 3. Align cut-out in bottom of heater with the cut-out in top of floor base. The cut-out in side of floor base must face towards the back of the heater (see illustration below).
STEP 4. Attach floor base to bottom of heater using four #8 screws (provided).

NOTE: Floor bases are for use on BFT10, BFT20 and BFT30.



GAS CONNECTION

STEP 1. Make the gas connection between the manual shut off valve and regulator located inside heater cabinet. Hold regulator when tightening connection to prevent damage to regulator and internal tubing. See Figure 6 for completed installation.

NOTE: All piping and connection must be checked for leaks by the installer. If connections are not exposed, a pressure test must be run. The appliance and its individual shut off valve must be disconnected from the gas supply piping system during any pressure testing at pressures in excess of ½ psig (3.5 kPa). The appliance must be isolated from the gas supply piping system by closing its individual manual shut off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than ½ psig (3.5kPa).

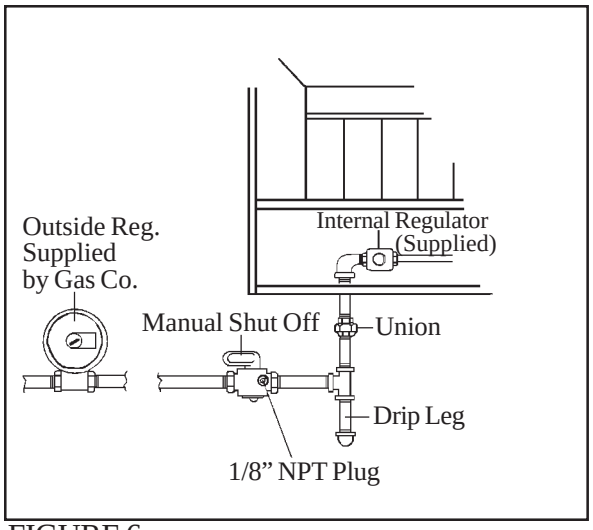
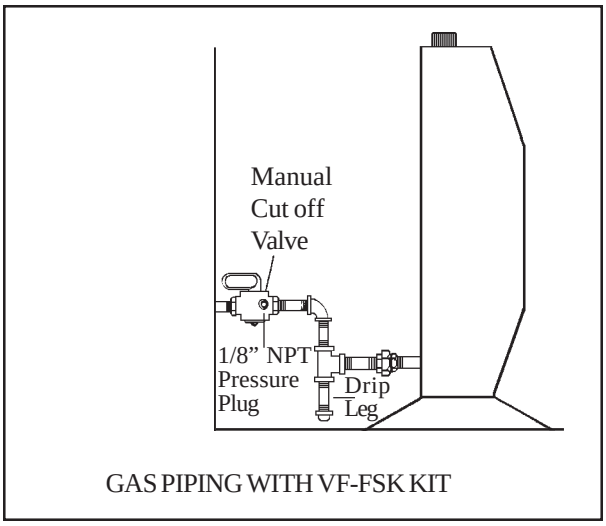


FIGURE 6



GAS PIPING WITH VF-FSK KIT

FIGURE 6A

BURNER ORIFICE

This appliance is orificed at the factory for elevations up to 2,000 ft. If installed above 2,000 ft. the BTU input must be reduced 4% per 1,000 ft. See the following orifice chart for the proper orifice for a specific elevation. Orifice change must be done by a qualified installer or service technician.

SPECIFIC ELEVATION

Model No. No.	0 to 2,000'	2,000 - 4,000'	4,000 - 6,000'	6,000 - 8,000'	8,000 - 10,000'
			NATURAL GAS		
BFT101	1.55 mm	54	54	55	55
BFT201	43	44	45	47	48
BFT301	36	38	40	41	43
			L.P. GAS		
BFT102	63	65	65	66	68
BFT202	55	55	56	56	57
BFT302	52	53	53	54	54

FOR YOUR SAFETY READ BEFORE LIGHTING

WARNING: IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

A. This appliance has a pilot which must be lighted by hand. When lighting the pilot, follow these instructions exactly.

B. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS:

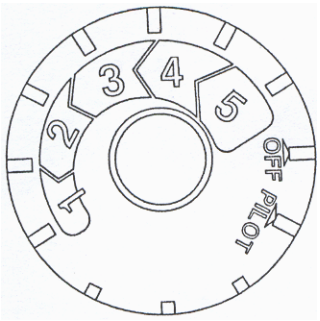
- Do not try to light any appliance.
- Do not touch any electric switch, do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS

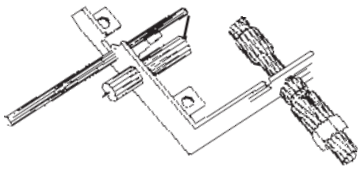
1. STOP! Read the information on the safety label.
2. Depress gas control knob slightly and turn clockwise ↷ to "OFF".
3. Turn off electric for optional blower.



Gas Control Knob

NOTE: Knob can not be turned from "PILOT" to "OFF" unless knob is depressed slightly. Do not force.

4. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the information on the safety label. If you don't smell gas, go to the next step.
5. Locate pilot.
6. Locate piezo ignitor button on top of heater.
7. Turn gas control knob counterclockwise ↶ to "PILOT".



8. Depress gas control knob and hold in. Immediately begin alternately pushing and releasing piezo ignitor button, observing pilot, until pilot is lit. Continue to hold the control knob in for about one (1) minute after the pilot is lit. Release the gas control knob and it will pop back up. Pilot should remain lit. If pilot goes out, repeat steps 2 thru 7.
   - If knob does not pop up when released, STOP and immediately call your service technician or gas supplier.
   - If the pilot will not stay lit after several tries, turn the gas control knob to "OFF" and call your service technician or gas supplier.
9. Turn on electric for optional blower.
10. Turn gas control knob counterclockwise ↶ to "ON".

TO TURN OFF GAS TO APPLIANCE

1. Depress gas control knob slightly and turn clockwise ↷ to "OFF".

PROPER OPERATION
ODS / PILOT FLAME

The pilot pressure has been pre-set at the factory and with proper supply pressure will provide a safe, reliable ignition source. See Figure 7.

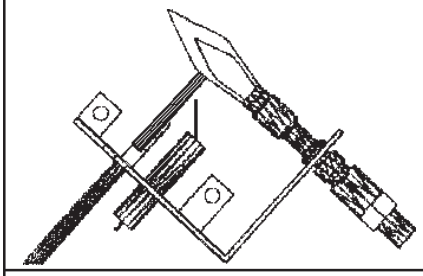
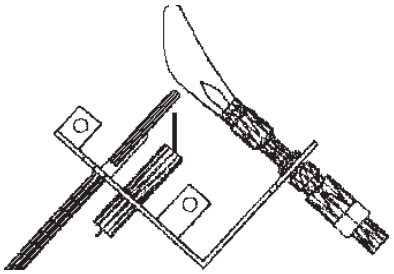
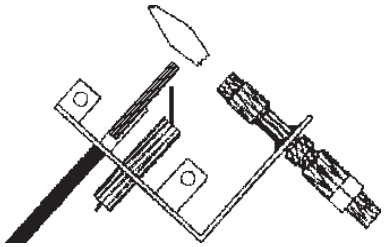
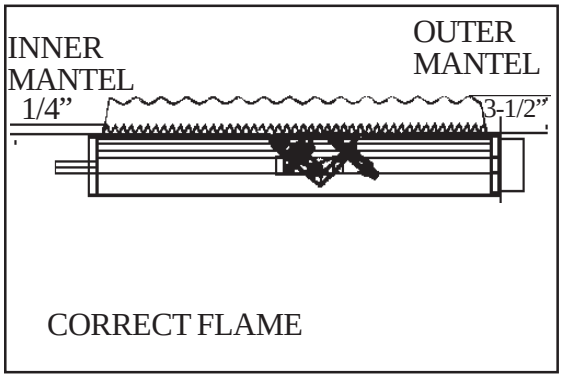
		
CORRECT	**INCORRECT - LOW PRESSURE**	**INCORRECT - OXYGEN LEVEL DROPPING**

FIGURE 7

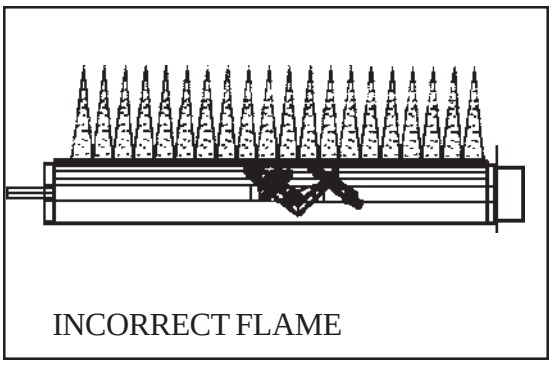
BURNER FLAME

All orificing and pressure setting was done at the factory and, with correct supply pressure will provide a safe, efficient source of heat. If installed above 2,000 ft. elevation, the main burner orifice must be changed. Orifice change must be completed by a qualified installer or service technician. See orifice chart on Page 10 for correct size. If there is any question about the manifold pressure, have a qualified serviceman check using a manometer. The manifold pressure should be 3.0" w.c. for natural gas and 10.0" w.c. for L.P. gas. A proper burner flame will have a soft blue outer mantel approximately 3.5 in. tall with a darker blue inner mantel approximately 1/4" tall.



CORRECT FLAME

FIGURE 8



INCORRECT FLAME

MAINTENANCE

The entire heater should be checked and cleaned by a qualified service technician before the start of each heating season. More frequent cleaning may be required due to excessive lint conditions from carpeting, bedding material, etc.

CABINET

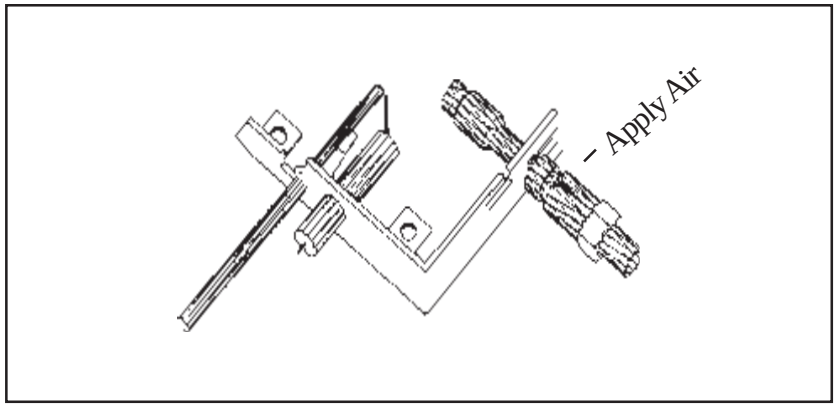
To clean the cabinet and hearth and jamb assemblies of your heater, turn off and allow to cool, then wipe with a soft damp cloth. This will remove any dust. Never use metal polish, furniture wax, or any type of cleaning solution as this could cause odors when the heater is turned back on.

MAIN BURNER

Burner may be cleaned by using a low pressure air hose, or soft brush.

ODS/PILOT

STEP 1. Remove bottom front panel.
STEP 2. Disconnect pilot line from pilot.
STEP 3. Use a low pressure air hose to blow through pilot and through ODS opening in side of pilot.
WARNING: Never insert anything into any of the openings in the pilot as this could damage the Oxygen Depletion System and expose the homeowner to Carbon Monoxide poisoning.
WARNING: After any servicing or cleaning make sure heater is completely re-assembled and check for gas leaks.



STEP 3 - PILOT CLEANING

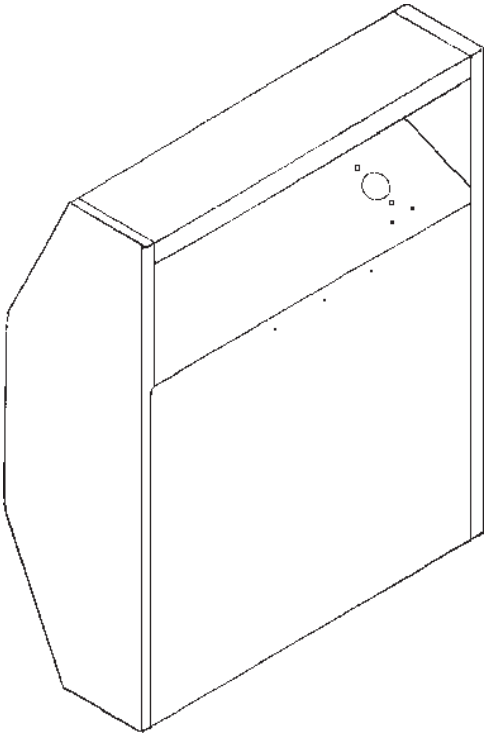
BLOWER INSTRUCTIONS

INSTALLING THE VFB BLOWER (BFT201 / BFT202, BFT301 / BFT302 MODELS ONLY)

STEP 1. Remove blower assembly from shipping carton.
STEP 2. Insert blower assembly into upper back of heater (See Figure 11).
STEP 3. Secure blower to heater using three #8 screws (provided) through holes pre-punched in heater back.
STEP 4. Locate mounting holes for switchbox (See Figure 11).
STEP 5. Secure switchbox to heater using two #8 screws (provided).
STEP 6. Plug power cord into 115 volt three-prong grounded receptacle.

CAUTION: Always unplug power cord before servicing or cleaning heater. This appliance is equipped with a three-prong (grounding) plug for your rotection against shock hazard and should be plugged directly into a properly grounded three prong receptacle.

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



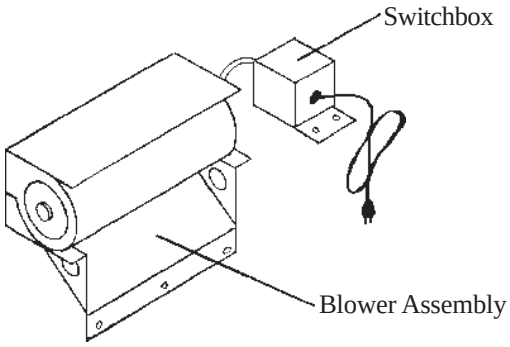
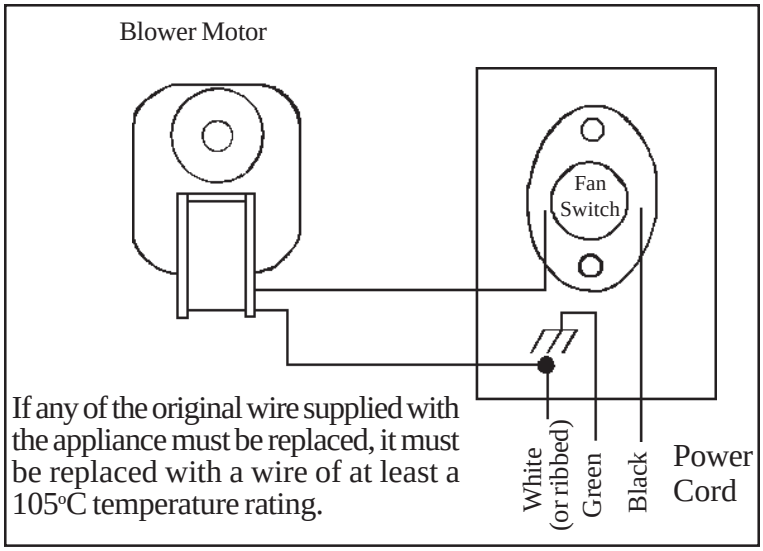


FIGURE 11


Blower Motor
Fan Switch
If any of the original wire supplied with the appliance must be replaced, it must be replaced with a wire of at least a 105°C temperature rating.
White (or ribbed)
Green
Black
Power Cord

WIRING DIAGRAM / VFB BLOWER

TROUBLE SHOOTING GUIDE

(for use by a qualified installer or service technician)

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
No spark at ODS	1. Ignitor wire off ODS or Piezo. 2. Ignitor wire shorting out on casing. 3. Defective piezo ignitor. 4. Wrong gap from electrode.	1. Check and re-attach ignitor wire. 2. Move ignitor wire. 3. Replace Piezo ignitor. 4. Set gap at 3/16".
Spark but no ignition at ODS	1. No gas to heater. 2. Air in gas line. 3. Blocked ODS orifice.	1. Check and turn on gas. 2. Hold in pilot knob to bleed air from gas line. 3. Blow out ODS with low pressure air hose.
ODS will not remain lit when control knob is released	1. Safety interlock system activated. 2. Control knob not held in long enough. 3. Control knob not in "PILOT" position. 4. Thermocouple loose at gas valve. 5. Defective thermocouple. 6. Defective gas valve. 7. Air in line.	1. Wait five minutes between re-ignition attempts. 2. Press in control knob, light ODS and hold control knob in for one minute. 3. Turn control knob to "OFF" then without pushing down turn knob counterclockwise ↶ until knob stops turning. Push knob down completely at this point. 4. Tighten thermocouple into gas valve. 5. Replace thermocouple (hand tighten plus 1/4 turn with wrrench). 6. Replace gas valve. 7. Bleed all air from gas line.
ODS lights but main burner does not	1. Control knob not in "ON" position. 2. Burner orifice blocked. 3. Gas supply pressure low. 4. Weak thermocouple. 5. Defective gas valve.	1. Turn control knob to "ON". 2. Clean burner orifice with low pressure air hose. 3. Check supply pressure. Call gas supplier. 4. Replace ODS. 5. Replace gas valve.
Delayed ignition	1. Low gas supply pressure. 2. Burner orifice blocked. 3. Low manifold pressure. 4. ODS not in correct location.	1. Check supply pressure. Call gas supplier. 2. Clean burner orifice with low pressure air hose. 3. Check and replace regulator if necessary. 4. Make sure ODS is properly mounted to burner bracket.
Flashback	1. Improper orifice burner alignment. 2. Gas supply pressure low.	1. Correct alignment. 2. Check supply pressure. Call gas supplier.
Heater shuts off during normal operation	1. Blocked ODS. 2. Low gas supply presure. 3. Not an adequate supply of combustion and ventilation air. 4. Heater located in drafty area.	1. Clean ODS. See maintenance section. 2. Check supply pressure. Call gas supplier. 3. See "Provisions for adequate combustion and ventilation air" on Page 4 of instructions. 4. Re-locate heater.

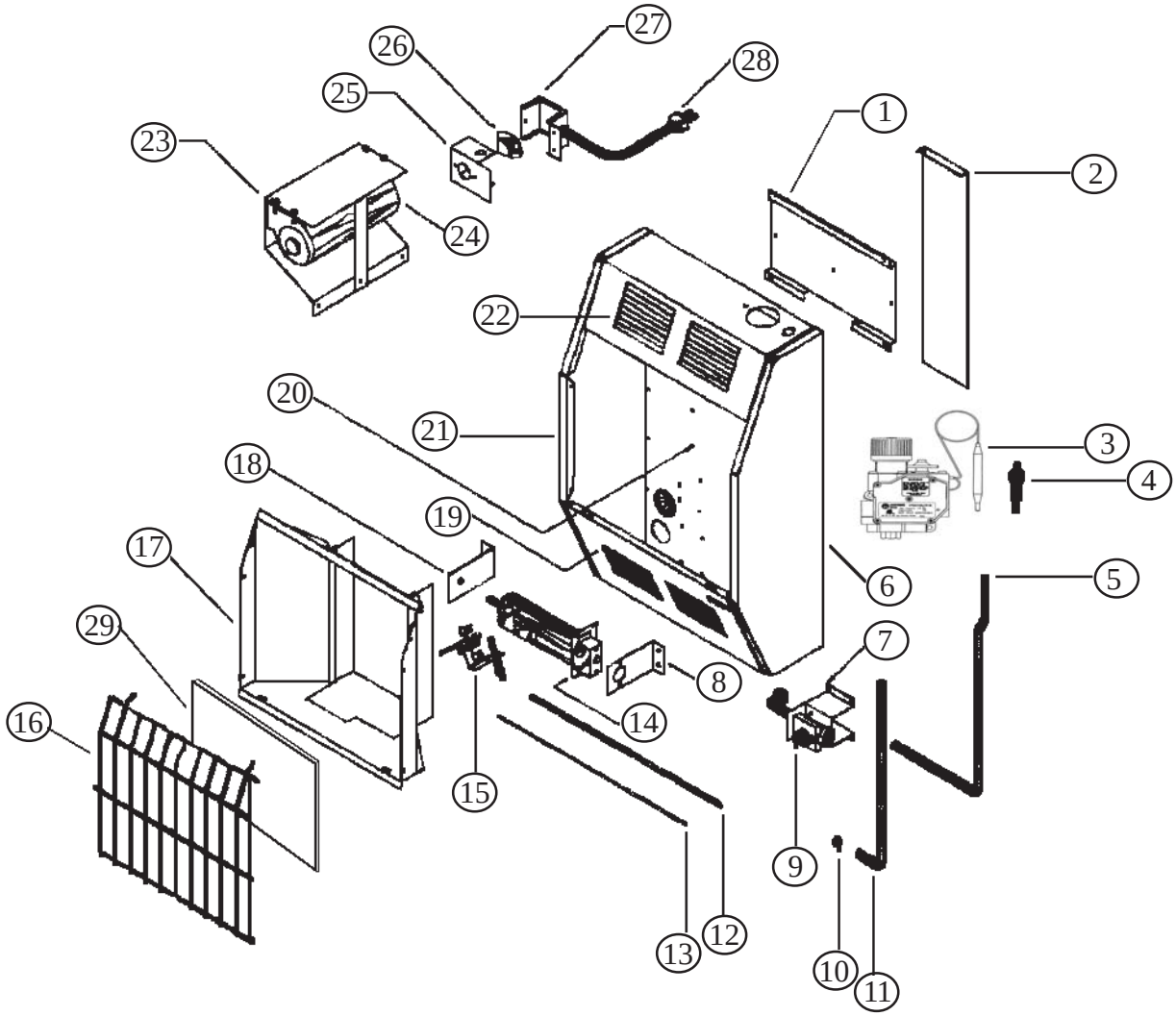
MODEL INCLUDED:

NAT. GAS	L.P. GAS
BFT101	**BFT102**
BFT201	**BFT202**
BFT301	**BFT302**

BLUE FLAME VENT FREE HEATER

PARTS LIST

Prices and specifications subject to change without notice. All prices are F.O.B. factory.



ATTN: CONTRACTORS AND SERVICE TECHNICIANS, we only sell parts through our wholesalers, but the prices listed are for your convenience. For prompt parts service, contact the wholesaler from which you purchased your Cozy heater. NOTE: parts & schematic drawings on current models are shown at **www.cozyheaters.com**.

REPLACEMENT PARTS LIST. TO ORDER REPLACEMENT PARTS YOU MUST GIVE MODEL NUMBER, SERIAL NUMBER, TYPE OF GAS USED, PART DESCRIPTION AND PART NUMBER.

MODEL NUMBERS	NAT.	BFT101		BFT201		BFT301	
	L.P.	BFT102		BFT202		BFT302	
PART DESCRIPTION	REF. NO.	PART NO.	LIST PRICE	PART NO.	LIST PRICE	PART NO.	LIST PRICE
THE PARTS LISTED BELOW WERE USED ON HEATERS WITH SERIAL NUMBERS 0216---- & 0716----							
(2002 & 0716 TO PRESENT.) (Check BLOCK 2 below for different parts used on 2003 through 2006).							
Wall Mounting Bracket	1	35220	$ 8.60	35960	$ 10.50	35960	$ 10.50
Lighting Instruction Assembly	2	91373	$ 3.50	91373	$ 3.50	91373	$ 3.50
Gas Valve 0.630.531 Nat. & L.P. (SIT)	3	88174	$ 183.90	88174	$ 183.90	88174	$ 183.90
Piezo Ignitor	4	80016	$ 7.00	80016	$ 7.00	80016	$ 7.00
Gas Supply Tube	5	88046	$ 7.50	88046	$ 7.50	88046	$ 7.50
Casing Right Side	6	35070	$ 16.10	35070	$ 16.10	35070	$ 16.10
Regulator Support Bracket	7	35480	$ 4.90	35480	$ 4.90	35480	$ 4.90
Right Burner Mounting Bracket	8	38090	$ 3.60	38090	$ 3.60	38090	$ 3.60
Gas Regulator - **Natural Gas**	9	88029	$ 16.70	88028	$ 16.70	88028	$ 16.70
Gas Regulator - **L.P. Gas**	9	88036	$ 21.50	88032	$ 21.50	88032	$ 21.50
Main Burner Orifice - **Natural Gas**	10	84646	$ 4.20	84639	$ 4.20	84642	$ 4.20
Main Burner Orifice - **L.P. Gas**	10	84645	$ 4.20	80026	$ 4.20	84644	$ 4.20
Manifold	11	88500	$ 23.00	88500	$ 23.00	88500	$ 23.00
Pilot Tubing Assembly	12	88013	$ 5.80	88013	$ 5.80	88013	$ 5.80
Electrode Wire 30"	13	88070	$ 3.50	88070	$ 3.50	88070	$ 3.50
Burner	14	88520	$ 63.40	88522	$ 66.20	88521	$ 69.00
*ODS/Pilot - **Natural Gas**	15	88164	$ 24.90	88164	$ 24.90	88164	$ 24.90
*ODS/Pilot - **L.P. Gas**	15	88165	$ 24.90	88165	$ 24.90	88165	$ 24.90
Wire Guard	16	88501	$ 34.50	88503	$ 40.20	88502	$ 46.10
Bezel Assembly	17	38050	$ 63.50	38350	$ 63.50	38550	$ 63.50
Left Burner Mounting Bracket	18	38095	$ 3.60	38095	$ 3.60	38095	$ 3.60
Bottom Front Panel	19	35360	$ 13.10	35860	$ 15.20	36360	$ 17.00
Casing Back	20	35420	$ 24.90	35925	$ 24.60	36420	$ 35.40
Casing Left Side	21	35060	$ 16.10	35060	$ 16.10	35060	$ 16.10
Top Front Panel	22	35350	$ 13.90	35850	$ 15.50	36350	$ 17.90
Blower Housing	23	N/A	N/A	37025	$ 16.00	37025	$ 16.00
Blower/Motor Assembly	24	N/A	N/A	88250	$ 71.90	88250	$ 71.90
Junction Box	25	N/A	N/A	37075	$ 7.50	37075	$ 7.50
Fan Switch	26	N/A	N/A	88240	$ 7.20	88240	$ 7.20
Junction Box Cover	27	N/A	N/A	37085	$ 9.60	37085	$ 9.60
Power Cord	28	N/A	N/A	80202	$ 5.10	80202	$ 5.10
Glass, Blue Flame	29	88510	$ 33.00	88512	$ 47.30	88511	$ 61.80
* CURRENT ODS PILOT (88164 [NAT.] & 88165 [L.P.]) RETRO FITS ALL PILOTS. **YOU MAY OR MAY NOT NEED TO USE PART NO. 88053 3/16 COMPRESSION NUT W/FERRULE (PROVIDED).**							
THE PARTS LISTED BELOW WERE USED ON HEATERS WITH SERIAL NUMBERS 0316---- THROUGH 0616----.							
FOR THESE OLDER HEATERS, THE PARTS LISTED BELOW ARE NEEDED FOR REPLACEMENT.							
Valve, VT-23100/18, Nat. (Copreci)	**3**	**88179**	**$ 108.20**	**88179**	**$ 108.20**	**88179**	**$ 108.20**
Valve, VT-23100/18, L.P. (Copreci)	**3**	**88179**	**$ 108.20**	**88179**	**$ 108.20**	**88179**	**$ 108.20**
Manifold	**11**	**88495**	**$ 24.60**	**88495**	**$ 24.60**	**88495**	**$ 24.60**
Top Front Panel	**22**	**35350**	**$ 13.90**	**35855**	**$ 23.00**	**36350**	**$ 17.90**

ATTN: CONTRACTORS AND SERVICE TECHNICIANS, we only sell parts through our wholesalers, but the prices listed above are for your convenience. For prompt parts service, contact the wholesaler from which you purchased your Cozy heater. NOTE: Parts & schematic drawings on current models are shown at **www.cozyheaters.com**.

LIMITED WARRANTY

The Louisville Tin & Stove Co. warrants to the original user the accompanying product for the period specified herein, provided said product is installed, operated, maintained, serviced, and used according to the instructions and specifications accompanying the product. **AS OUTLINED IN OUR INSTRUCTIONS, ANY WARRANTY CONSIDERATIONS ARE CONTINGENT ON INSTALLATION BY A QUALIFIED INSTALLER (CONTRACTOR). SELF-INSTALLATION IS PROHIBITED AND WILL INVALIDATE YOUR WARRANTY.**

If within a period of one year from the date of installation of the product, any part supplied by the manufacturer proves to be defective due to workmanship or material, it will replace such part, provided parts have not been subjected to misuse, alteration, neglect, or accidents. The term of the warranty for the heat exchanger and burners is covered in Table A below. Any claim not made within ten (10) days after the expiration of the warranty period shall be deemed waived by the user.

The manufacturer shall have no liability or be required to perform any obligation under this warranty unless, when requested, the user returns, at the user's expense, the component or product claimed defective, to the manufacturer for inspection, to enable the manufacturer to determine if the claimed defect is covered by this warranty.

No charges for freight, labor or other expenses incurred in the repair, removal, or replacement of any product or component claimed to be defective, will be paid by the manufacturer to the user, and the manufacturer will not be liable for any expenses incurred, by the user, in remedying any defect in the product.

Service under this warranty is the responsibility of the installer. In the event service under this warranty is needed, the user of the product shall request such service directly from the installer. If the user is unable to locate the installer, the user should write directly to the manufacturer, and the name of an alternative service source will be supplied.

The product safety registration card (packed inside the appliance) must be completed and returned to the factory.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED (WHETHER WRITTEN OR ORAL). ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY LIMITED TO THE DURATION OF THE MANUFACTURER'S EXPRESS, WRITTEN WARRANTY.

UNDER NO CIRCUMSTANCES SHALL THE MANUFACTURER BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR EXPENSES ARISING DIRECTLY OR INDIRECTLY FROM ANY COMPONENT OR FROM THE USE THEREOF. THE REMEDIES SET FORTH HEREIN SHALL BE THE EXCLUSIVE REMEDIES AVAILABLE TO THE USER AND ARE IN LIEU OF ALL OTHER REMEDIES.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY, FROM STATE TO STATE.

TABLE A

	Warranty Period	
Product	**Heat Exchanger/Tubes**	**Burners**
Cozy Gas Fired Floor Furnace	10 Years	10 Years
Cozy Gas Fired Wall Furnace	10 Years	10 Years
Cozy Gas Fired Vented Console Heater	10 Years	10 Years
Cozy Gas Fired Direct Vent Heater	10 Years	10 Years
Cozy Gas Fired Counterflow Furnace	10 Years	10 Years
Cozy Gas Fired Counterflow Direct Vent Furnace	10 Years	10 Years
Cozy Gas Fired Mobile Home Direct Vent Furnace	10 Years	10 Years
Cozy Gas Fired Hi-Efficient Direct Vent Wall Furnace	10 Years	10 Years
Cozy Gas Fired Direct Vent Baseboard Heater	10 Years	10 Years
Cozy Fan-Type, Direct Vent Through-The-Wall Gas Heater	10 Years	10 Years
Cozy Blue Flame Vent Free Heater	N/A	10 Years
Cozy Infra-Red Vent Free Heater	N/A	N/A

LOUISVILLE TIN & STOVE COMPANY
737 S. 13TH STREET - LOUISVILLE, KY. 40210